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SUPERCONDUCTING THIN FILMS, COMPOSITES AND JUNCTIONS

By

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April 1984

PUBLICATIONS

1. "The Science of Useful Superconductors - and Beyond," by T. H. Geballe, IEEE Trans. Mag. MAG-19, (1983).
2. "Phase Stability of Al₅ Nb-Sn," by F. Hellman, D. A. Rudman, R. H. Hammond and T. H. Geballe, Bull. Am. Phys. Soc., 28, 262 (1983).
3. "The Effect of Annealing on Sputtered Multilayers of NbZr," by P. R. Broussard, W. P. Lowe and T. H. Geballe, Bull. Am. Phys. Soc., 28, 298 (1983).
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5. "Annealing Effects on Superconductivity of Amorphous Vapor Quenched Mo_{1-x}Ge_x (x = 0.35)," by S. Yoshizumi and W. L. Carter, Bull. Am. Phys. Soc. 28, 263 (1983).
6. "Tunneling Properties of Zr:O as Artificial Barriers in Superconducting Tunneling Junctions," by S. Celaschi, R. H. Hammond, T. H. Geballe, W. P. Lowe and A. Green, Bull. Am. Phys. Soc. 28, 423 (1983).
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8. "NbZr Multilayers I: Structure and Superconductivity," W. P. Lowe and T. H. Geballe, submitted to Phys. Rev.
9. "NbZr Multilayers II: Extended X-ray Absorption Fine Structure Study," by T. Claeson, J. B. Boyce, W. P. Lowe and T. H. Geballe, submitted to Phys. Rev.
10. "Flux-Pinning and Inhomogeneities or Defects in Amorphous Superconducting Mo₅Ge₃ Films," by Shozo Yoshizumi, W. Carter and T. H. Geballe, to appear in the proceedings of the 5th International Conference on Liquid and Amorphous Metals, Los Angeles, (1983). 75-2
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12. "High Pressure Study of Some ThCu_2Si_2 -Type Ternary Compounds," by P. H. Hor, X. C. Jin, M. K. Wei, T. H. Lin and C. W. Chu, T. H. Geballe, G. W. Hull, Jr., J. H. Wernick, R. L. Meng and Z. X. Zhao, submitted to AIRAPT IX, 24-29, July 1983, Albany, N. Y.
13. "Superconductivity in Ternary Heusler Intermetallic Compounds," by J. H. Wernick, G. W. Hull, T. H. Geballe, J. E. Bernardini and J. V. Waszczak, Materials Letters, 2 90 (1983).
14. "Towards and Understanding of the Limits of Superconductivity," by T. H. Geballe presented at the Distinguished Lecture Series, New Mexico Institute for Mining, New Mexico, October 20, 1983.
15. "Materials: Analogue Answers in a Digital Age," by T. H. Geballe, submitted to Physica.
16. "New Possibilities for Niobium-Based Josephson Tunneling," by S. Celaschi, T. H. Geballe, and R. H. Hammond, submitted to Journal of Applied Physics.
17. "Further Investigations of Solid-Liquid Interaction and High Field Critical Current Density in Liquid-Infiltrated Nb-Sn Conductors," M. Hong, D. M. Maher, F. Hellman, T. H. Geballe, J. W. Ekin, and J. T. Holthuis, submitted to the Applied Superconductivity Conference, San Diego, September 1984.
18. "The Effect of Non-Hydrostatic Strain on the Superconducting Properties of In-Situ Formed Cu-Nb₃Sn Filamentary Composites," by J. Beuk, W. A. Sunder, F. Hellman, and T. H. Geballe, submitted to the Applied Superconductivity Conference, San Diego, September 1984.
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20. "Thin Film Growth of Stable Al₁₅ Compounds," by F. Hellman, T. H. Geballe, Bull. Am. Phys. Soc. 29, 385 (1984).
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22. "The Specific Heat of Niobium-Zirconium Multilayers," by P. R. Broussard, D. Mael and T. H. Geballe, Submitted to Physical Review.

VISITORS AND SEMINARS

1. Dr. M. Gurvitch, Bell Laboratories
"Boltzmann Transport and the Saturation of Electrical Resistivity"
October 6, 1983
2. Dr. Gloria Lubkin, Editor, Physics Today
"The Search for Stories: The Stories for Search"
October 26, 1983
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October 27, 1983
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"Scanning Tunneling Microscopy, an Atomic Surface Probe"
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"Elementary Particles at Rest in Space: g-Factors and
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"Nuclear Weapons: Defense vs. Deterrents"
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December 8, 1983
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"Momentum and Pseudo-Momentum"
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"Strained Layer Semiconductors"
January 26, 1984
13. Professor M. Brian Maple, University of San Diego
"Superconductivity, Magnetism and a Possible
New Superconducting State"
January 11, 1984

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14. Dr. F. DiSalvo, Bell Laboratories
"Non-Linear Charge Density Wave Properties of Potassium Molybdenum Bronze ($K_{0.3}MoO_3$)"
February 2, 1984
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"Dynamics of Computing Structures"
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New Discoveries, Inventions or Patent Disclosures

NONE

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1 October 1983 - 31 March 1984

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Yoshizumi, Shozo	Ph.D. expected Summer 1985
Broussard, Phillip	Ph.D. expected Summer 1985
Park, Sung	Ph.D. expected Summer 1986
Kent, Andrew	Ph.D. expected Summer 1986